(c) repeating steps (a) and (b) on other regions of said support whereby each of said other regions has bound thereto another nucleotide comprising a masked reactive site link to a protecting group, wherein said another nucleotide may be the same or different from that used in step (b);

(d) removing the protecting group from one of the nucleotides bound to one of the regions of the support to provide a region bearing a nucleotide having an unmasked reactive site;

(e) binding an additional nucleotide to the nucleotide with an unmasked reactive site;

(f) repeating steps (d) and (e) on regions of the support until a desired pluarlity of nucleic acids is synthesized, each nucleic acid occupying separate known regions of the support;

wherein said attaching and said binding are each made by covalently forming a phosphite triester linkage between said nucleotides and said unmasked reactive site and further comprising oxidizing said phosphite triester linkage to a phosphate triester linkage with a solution of from about 0.005 M to about 0.05 M iodine in an aqueous solvent mixture.

A'

3. A method in accordance with claim 2, wherein said synthesizing comprises the sequential steps of:

a) removing a photoremoveable protecting group from at least a first area of a surface of a substrate, said surface comprising immobilized nucleotides on said surface, said nucleotides capped with a photoremovable protective group, without removing a photoremoveable protecting group from at least a second area of said surface;

b) simultaneously contacting said first area and said second area of said surface with a first nucleotide to couple said first nucleotide to said immobilized nucleotides in said first area, and not in said second area, said first nucleotide capped with said photoremovable protective group;

c) removing a photoremoveable protecting group from at least a part of said first area of said surface and at least a part of said second area;

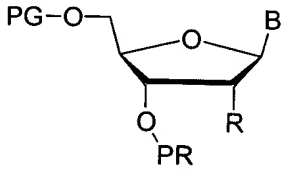
d) simultaneously contacting said first area and said second area of said surface with a second nucleotide to couple said second nucleotide to said immobilized

nucleotides in at least a part of said first area and at least a part of said second area;

e) performing additional removing and nucleotide contacting and coupling steps so that a matrix array of at least 100 nucleic acids having different sequences is formed on said support;

with the proviso that the coupling steps further comprise oxidizing an initially formed phosphite ester linkage to a phosphate ester linkage using from about 0.005 M to about 0.05 M iodine in an aqueous solvent mixture.

5. A method in accordance with claim 3, wherein said nucleotides have the formula:



wherein

B is a member selected from the group consisting of natural or unnatural adenine, natural or unnatural guanine, natural or unnatural thymine, natural or unnatural cytosine, and natural or unnatural uracil;

R is a member selected from the group consisting of hydrogen, hydroxy, protected hydroxy, halogen and alkoxy;

PR is a phosphoramidite group; and

PG is a photoremoveable protected group.

REMARKS

Status of the Application

Claims 1-17 are presently pending in the application. Claims 1-17 were rejected under 35 U.S.C. § 112, second paragraph. Claims 1-17 were also rejected under 35 U.S.C. § 103 (a) over Earhart et al. in view of McGall et al.

Rejection under 35 U.S.C. § 112, second paragraph